

# HIV

2

. . . .  
. . . .

## =Abstract=

### Two cases of systemic inflammatory reactions after highly active antiretroviral therapy in HIV infected patients with tuberculosis

Jun Yong Choi, M.D., Young Keun Kim, M.D., Kkot Sil Lee, M.D.,  
Myung Soo Kim, M.D., Kyung Hee Chang, M.D., Sung Kwan Hong, M.D.,  
Ae Jung Huh, M.D., Joon Sup Yeom, M.D.,  
Young Goo Song, M.D. and June Myung Kim, M.D.

*Department of Internal Medicine, Yonsei University College of Medicine, Seoul, Korea*

Highly active antiretroviral therapy for HIV infection has led to substantial reduction in AIDS associated morbidity and mortality. Systemic inflammatory reactions after the initiation of HAART (highly active antiretroviral therapy) have recently been described in HIV infected patients. The pathogenesis of systemic inflammatory reaction after HAART has not yet been clearly explained, but immune restoration after HAART may explain this phenomenon.

We report two cases of systemic inflammatory reactions after starting HAART in HIV-infected patients. In each cases, 5 or 18 days after starting combination antiretroviral therapy, spiking fever and infiltration on chest Xray were developed. The etiology of fever such as opportunistic infection, drug reaction, noncompliance, or malabsorption were evaluated, but cause for clinical deterioration was not found. We concluded that this phenomenon was systemic inflammatory reaction after HAART and we overcame the clinical deterioration by steroid use.(Korean J Med 62:313-319, 2002)

**Key Words** : HIV, HIV infections, Acquired immunodeficiency syndrome, Antiretroviral therapy, highly active

virus, HIV) CD4 (human immunodeficiency HIV vudine 가 1987 2) 1995 zido- 가 . HIV RNA 가 가 1) .

- 
- : 2001 7 20
  - : 2001 9 20
  - : , 134, (120- 752)
- E-mail : jmkim@yumc.yonsei.ac.kr

3 (highly active antiretroviral therapy, HAART) (acquired immunodeficiency syndrome, AIDS)

HAART (systemic inflammatory reaction)

, B C (Cryptococcus neoformans), HIV

HAART HIV

2

1

: , , 24

: , ,

: 3 HIV

3

, 1

, , 가 , ,

.

:

가 :

:

: 110/70 mmHg,

96 / , 18 / , 38.2 .

.

:

: 5,230/mm<sup>3</sup> (

92.7%, 5.9%, 0.8%), 8.4

g/dL, 132,000/mm<sup>3</sup>

AST/ALT 90/49 IU/L, LDH 1793 IU/L, BUN/Cr

11/0.7 mg/dL . CD4

34/mm<sup>3</sup>, CD8 178/mm<sup>3</sup> HIV RNA

copy 2,590,323 copies/mL .



**Figure 1.** Chest PA shows bilateral diffuse small nodules on whole lung fields at initial presentation (Case 1).

( 1).

: 2 isoniazid, ethambutol, rifampin, pyrazinamide

38

9

가 27

zidovudine, lamivudine,

indinavir 3

5

39

(ground glass appearance)



**Figure 2.** Chest PA shows bilateral perihilar pulmonary infiltrations and ground glass appearances on whole lung fields on the 39th hospital day (Case 1).

( 2). 39 40 72 dexamethasone prednisolone 50 mg  
86 ,  
prednisolone 50 mg  
4  
prednisolone  
5  
(*Pneumocystis carinni*)  
6 dexamethasone 10 mg  
dexamethasone  
48  
(extubation)  
( 3).



**Figure 3.** Chest PA shows the improvement of perihilar infiltrations and ground glass appearances after steroid use (Case 1).



**Figure 4.** Chest PA shows clearance of bilateral small nodules on five months after discharge (Case 1).

( 4). CD4  
280/mm<sup>3</sup>, CD8 264/  
mm<sup>3</sup> 가  
2  
:  
:  
:  
HIV 3  
HIV RNA copy 89,884 copies/mL 가  
3  
:  
가 :  
:  
:  
:  
120/80 mmHg,  
95 / , 20 / , 39.4 .



**Figure 5.** Chest PA shows left suprahilar lymphadenopathy (Case 2).

( 6A, B).  
 : 6  
 : 3,500/mm<sup>3</sup> (  
 68.3%, 23.9%, 5.5%), 10.8  
 g/dL, 110,000/mm<sup>3</sup>  
 AST/ALT 50/34 IU/L, LDH 531 IU/L, BUN/Cr 11.2/  
 1.1 mg/dL . CD4  
 74/mm<sup>3</sup>, CD8 549/mm<sup>3</sup> HIV RNA  
 copy 454,676 copies/mL .

가 ( 5)  
 가

isoniazid, ethambutol, rifampin, pyrazinamide  
 가 가 14  
 zidovudine, lamivudine, indinavir 3  
 18  
 가

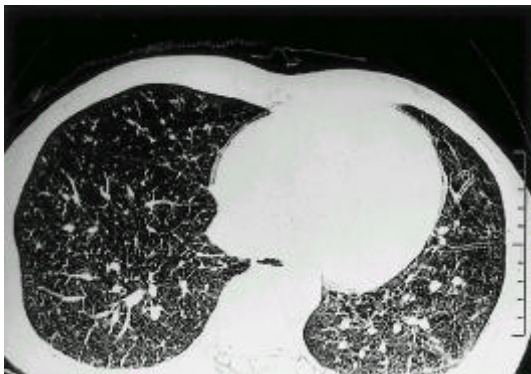


Figure 6A.



Figure 6B

**Figure 6.** A, B. Chest CT shows left mediastinal lymphadenopathy and bilateral parenchymal and subpleural nodules (Case 2).

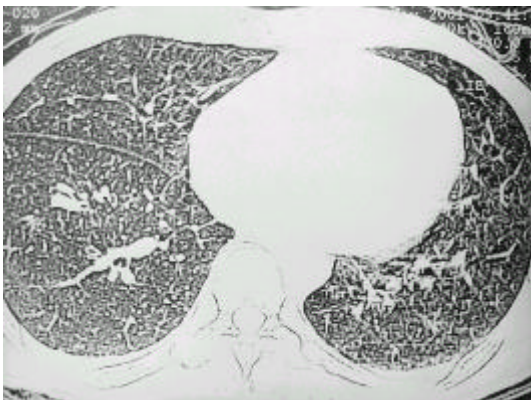


Figure 7A



Figure 7B

**Figure 7.** A, B. Chest CT shows the aggravation of mediastinal lymphadenopathy and parenchymal nodules (Case 2).

.<sup>6)</sup> .  
 HAART HIV RNA copy  
 CD4 가가  
 가  
 가  
 (chronic granulomatous inflammation with necrosis) 가 CD4 가  
 가  
 (naive) CD4  
 25 prednisolone 60 mg<sup>9, 10)</sup> .  
 prednisolone T 가가 (recalled  
 antigen)  
 63  
 prednisolone 60<sup>10)</sup> .  
 mg predni- HIV HAART ,  
 solone ,  
 가  
 HIV  
 CD4 T<sup>11-13)</sup> .  
 . 1983 Montagnier<sup>7)</sup> 가 HAART ,  
 가 HIV 가 ,  
 . 1987 zidovudine . ,  
 FDA 1995 ,  
 가 ,  
 가  
 3<sup>3)</sup> . HIV ,  
 HAART AIDS ,  
 , HAART  
 가 HIV HAART  
<sup>4, 5)</sup> .  
 HIV Jacobson<sup>14)</sup> HAART<sup>6)</sup> .  
<sup>6)</sup> .  
 HAART  
 CD4 T CD8 T B  
 가 Nigro<sup>16)</sup>  
 Woods<sup>17)</sup>

# HAART

가 AIDS  
HAART  
18, 19)  
HIV viral load CD4 가  
6)  
Furrer<sup>11)</sup> HIV  
HAART  
prednisolone  
Chien<sup>13)</sup> HIV  
prednisolone  
가  
가  
HAART  
HIV HAART  
가  
가  
HIV HAART  
HIV HAART  
2

# REFERENCE

- 1) Pantaleo G, Graziosi C, Fauci AS. *New concepts in the immunopathogenesis of human immunodeficiency virus infection.* *N Engl J Med* 328:327-335, 1993
- 2) Fischl MA, Richman DD, Grieco MH, Gottlieb MS, Volberding PA, Laskin OL, Leedom JM, Groopman JE, Mildvan D, Schooley RT. *The efficacy of azidothymidine(AZT) in the treatment of patients with AIDS and AIDS related complex.* *N Engl J Med* 317:185-191, 1987
- 3) Carpenter CC, Cooper DA, Fischl MA, Gatell JM, Gazzard BG, Hammer SM, Hirsch MS, Jacobsen DM, Katzenstein DA, Montaner JS, Richman DD, Saag MS, Schechter M, Schooley RT, Thompson MA, Vella S, Yeni PG, Volberding PA. *Antiretroviral therapy in adults: updated recommendations of the international AIDS society-USA panel.* *JAMA* 283:381-390, 2000
- 4) Palella FJ Jr, Delaney KM, Moorman AC, Loveless MO, Fuhrer J, Satten GA, Aschman DJ, Holmberg SD. *Declining morbidity and mortality among patients with advanced human immunodeficiency virus infection.* *N Engl J Med* 338:853-860, 1998
- 5) , , , , HIV  
3  
19(Suppl):264, 2001
- 6) DeSimone JA, Pomerantz RJ, Babinchak TJ. *Inflammatory reactions in HIV-1 infected persons after initiation of highly active antiretroviral therapy.* *Ann Intern Med* 133:447-454, 2000
- 7) Barre-Sinoussi F, Chermann JC, Rey F, Nugeyre MT, Chamaret S, Gruest J, Dautet C, Axler-Blin C, Vezinet-Brun F, Rouzioux C, Rozenbaum W, Montagnier L. *Isolation of a T-lymphotropic retrovirus from a patient at risk for acquired immune deficiency syndrome(AIDS).* *Science* 220:868-871, 1983
- 8) Lederman MM, Valdez H. *Immune restoration with antiretroviral therapies: implications for clinical management.* *JAMA* 284:223-228, 2000
- 9) Bucy RP, Hockett RD, Derdeyn CA, Saag MS, Squires K, Sillers M, Mitsuyasu RT, Kilby JM. *Initial increase in blood CD4(+) lymphocytes after HIV antiretroviral therapy reflects redistribution from lymphoid tissues.* *J Clin Invest* 103:1391-1398, 1999
- 10) Autran B, Carcelain G, Li TS, Blanc C, Mathez D, Tubiana R, Katlama C, Debre P, Leibowitch J. *Positive effects of combined antiretroviral therapy on CD4+ T cell homeostasis and function in advanced*

- HIV disease. Science 277:112-116, 1997*
- 11) Furrer H, Malinverni R. *Systemic inflammatory reaction after starting highly active antiretroviral therapy in AIDS patients treated for extrapulmonary tuberculosis. Am J Med 106:371-372, 1999*
  - 12) John M, French MA. *Exacerbation of the inflammatory response to mycobacterium tuberculosis after antiretroviral therapy. Med J Aust 169:473-474, 1998*
  - 13) Chien JW, Johnson JL. *Paradoxical reactions in HIV and pulmonary TB. Chest 114:933-936, 1998*
  - 14) Jacobson MA, Zegans M, Pavan PR, O'Donnell JJ, Sattler F, Rao N, Owens S, Pollard R. *Cytomegalovirus retinitis after initiation of highly active antiretroviral therapy. Lancet 349:1443-1445, 1997*
  - 15) Race EM, Adelson-Mitty J, Kriegel GR, Barlam TF, Reimann KA, Letvin NL, Japour AJ. *Focal mycobacterial lymphadenitis following initiation of protease-inhibitor therapy in patients with advanced HIV-1 disease. Lancet 351:252-255, 1998*
  - 16) Nigro L, Romano F, Tosto S, Zagami A, Bruno S, Nunnari A. *Severe hepatitis in a HIV-positive subject under treatment with protease inhibitor. Ital J Gastroenterol Hepatol 31:85-86, 1999*
  - 17) Woods ML, MacGinley R, Eisen DP, Allworth AM. *HIV combination therapy: partial immune restitution unmasking latent cryptococcal infection. AIDS 12:1491-1494, 1998*
  - 18) Rosenfeld C, Calabrese L. *Progression of autoimmune thyroiditis in an HIV-infected woman on HAART AIDS Reader 9:393-397, 1999*
  - 19) Weir A, Wansbrough-Jones M. *Mucosal Kaposi's sarcoma following protease inhibitor therapy in an HIV-infected patient. AIDS 11:1895-1896, 1997*
-